

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 12, 13, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaczun et al. in view of McCaughey, Jr. et al. (US 5259311).

Regarding claim 12, Kaczun et al. teach "a process for the production of flexographic printing plates by means of laser engraving (title, abstract, paragraph 8), in which the starting material used is a photopolymerizable flexographic printing element (paragraph 8) at least comprising, arranged one on top of the other,

a dimensionally stable substrate (paragraph 39),

a photopolymerizable, relief-forming layer having a thickness of at least 0.3 mm (paragraph 44), at least comprising an elastomeric binder (paragraph 13), an ethylenically unsaturated monomer (paragraph 18) and a photoinitiator (paragraph 19), and

a protective element substantially transparent to actinic light, wherein the protective element is a polymeric film comprising a polymeric material selected from the group consisting of polyethylene, polypropylene, PET, PEN and polyamide (paragraph 47, PET is transparent),

wherein the process comprises the following steps:

(a) crosslinking of the relief-forming layer in the total volume of the layer by exposure to actinic light (paragraph 10)

(b) removal of the protective element by peeling it off (paragraph 47) and

(c) engraving of a print relief into the crosslinked relief-forming layer with the aid of a laser emitting from 3 000 to 12 000 nm (paragraph 47), the height of the relief elements to be engraved with the laser being at least 0.03 mm (paragraph 44),

and the protective element is a film which has been provided with a nontacky treatment or coating on the side facing the relief-forming layer and which is applied directly to the relief-forming layer, the adhesion between the protective element and the relief-forming layer being adjusted so that the protective element can be peeled off the crosslinked, relief-forming layer after process step (a) (paragraph 47) and wherein the actinic light is UV-A radiation having a wavelength of from about 320 to 400 nm and/or UV-A/VIS radiation having a wavelength of from about 320 to about 700 nm (paragraph 10).”

Kaczun et al. further teach that the protective element is removed prior to laser engraving, but fail to specifically teach that the crosslinking is performed while the protective element is still on the relief-forming layer, the crosslinking occurring by exposure of actinic light “through the protective element.”

McCaughey, Jr. et al. teach curing a flexographic photopolymer layer through a protective element, subsequently removing the protective element, and then engraving a printing relief in the relief-forming layer (Figure 1) in order to achieve a high quality photopolymer flexographic printing plate (column 2, lines 21-24).

Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to, in the method of Kaczun et al., in this sequence:

expose the relief-forming layer to actinic light through the protective element in order to crosslink the relief-forming layer,
remove the protective element, and
engrave a print relief,
in order to achieve a high quality photopolymer flexographic printing plate.

Regarding claim 13, Kaczun et al. further teach “wherein the protective element comprises a nontacky coating (paragraph 47).”

Regarding claim 15, Kaczun et al. further teach “additionally comprises a subsequent cleaning step (d) (paragraph 57).”

3. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kaczun et al. in view of McCaughey, Jr. et al. (US 5259311), as applied to claim 13 above, further in view of Mengel et al. (US 2003/0211423).

Regarding claim 14, Kaczun et al. teach all that is claimed, including “the elastomeric binder in the relief-forming layer is a thermoplastic elastomeric block copolymer of the styrene/butadiene type (paragraph 14).”

Kaczun et al. as modified fail to specifically mention that “the nontacky layer substantially comprises a polyamide.”

However, Mengel et al. teach that release layers/non-tacky coatings are commonly made of polyamides (paragraph 33).

Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to further modify Kaczun et al. in accordance with Mengel et al. such that the non-tacky coating of Kaczun et al. is made substantially of polyamide in order to have a suitable non-tacky coating.

4. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kaczun et al. in view of McCaughey, Jr. et al. (US 5259311), as applied to claim 12 above, further in view of Landsman (US 2003/0089261).

Regarding claim 16, Kaczun et al. as modified teach all that is claimed, except "wherein decomposition products formed in step (c) are sucked away." Landsman et al. teach using a vacuum to suck away ablated material from a printing plate (paragraph 65). Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to suck away the ablated material in order to clean the printing plate.

5. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaczun et al. in view of McCaughey, Jr. et al. (US 5259311), as applied to claim 12 above, further in view of Telser et al. (US 2003/0136285).

Regarding claim 17, Kaczun et al. as modified teach all that is claimed, but fail to teach that "after the removal of the protective film (b), the crosslinked relief-forming layer is crosslinked in a subsequent process step (b') to a limited depth of penetration, viewed from the surface, beyond the extent of the crosslinking density produced by step

(a).”

However, Telser et al. teach the exact method (paragraph 55) in order to prevent the appearance of melt borders (paragraph 13).

Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to further modify the method of Kaczun et al. in accordance with Telser et al. in order to prevent the appearance of melt borders.

Regarding claim 18, Telser et al. further teach “wherein the depth of penetration to which additional crosslinking is effected in step (b') is from 5 to 200 μm (paragraph 57).”

Regarding claim 19, Telser et al. further teach “wherein the surface crosslinking step (b') is carried out using UV light having a wavelength of from 200 to 300 nm (paragraph 62).”

Response to Arguments

6. Applicants’ arguments with respect to all the claims have been considered but are moot in view of the new ground(s) of rejection.

7. In response to applicants’ arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

8. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSHUA D. ZIMMERMAN whose telephone number is (571)272-2749. The examiner can normally be reached on M-R 8:30A - 6:00P, Alternate Fridays 8:30A-5:00P.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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